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ABSTRACT

A study of reciprocals in Japanese compares two kinds: (1) a verbal suffix "aw"; and (2) an NP argument "otagai." Although "otagai" appears to be taken care of by syntactic binding theory, it is proposed that there is no evidence for the existence of a syntactic position of the object NP in the case of "aw." The suffix can be characterized as operating on the argument structure of a verb and preventing the theta role of the object NP from projecting into a syntactic position. Based on this conclusion, it is argued that the so-called ECM construction and the o-causative involve an NP object outside of the complement clause, and that an o-marked NP that appears in the "aw"-construction is not an argument of the stem verb, but is an adjunct related to the absorbed argument. (Contains 18 references.) (Author/MSE)

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# RECIPROCAL PREDICATES IN JAPANESE*

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## 1. Introduction

There are two different ways in which languages indicate reciprocity: (i) by specially marking one of the two arguments which are in a reciprocal relationship, or (ii) by specially marking the verb whose arguments are in a reciprocal relationship. English takes the first option, and uses *each other* to mark an argument which is in a reciprocal relation with another.

(1) John and Mary hit each other (English)

Tagalog, reported in Carrier-Duncan (1985), for example, takes the second option, and marks reciprocity on verbs.

(2) Nag-hiwalay ang#mga#kaibigan
ST-separated-from-each-other T#pl #friend
(ST=subject topic; T=topic) (Tagalog)
'The friends separated from each other' (Carrier-Duncan 1985)

Japanese is interesting in that it has both options within the language. As one option, it marks reciprocity by the verbal suffix *aw* ('to meet'). An example is given in (3).[1]

(3) [John to Mary] ga hihansi-aw-ta (reciprocal suffix *aw*)
and nom criticize-rec-past
'John and Mary criticized each other'

The other device is to use *otagai*, the Japanese counterpart of *each other*, as an argument.

(4) [John to Mary] ga otagai o hihansi-ta
and nom each other acc criticize-past
(reciprocal argument *otagai*)
'John and Mary criticized each other'

The two devices can be used simultaneously to mark a single reciprocal relationship, as in (5).

(5) a.(?)[John to Mary] ga otagai o hihansi-aw-ta
and nom e.o. acc criticize-rec-past
'John and Mary criticized each other'

b. [John to Mary] ga [otagai no hon] o hihansi-aw-ta
and nom e.o. 's book acc criticize-rec-past
'John and Mary criticized each other's books'

The two sentences (3) and (4) appear to have identical thematic relations. Thus, given the Uniformity of Theta Assignment Hypothesis (UTAH) by Baker (1988), stated in (6), an analysis that immediately comes to mind is to treat *aw* as an argument of the verb *hihansi* ('criticize') and postulate similar D-structures as in (7).

(6) **The Uniformity of Theta Assignment Hypothesis (UTAH)**
Identical thematic relationships between items are represented by identical thematic relationships between those items at the level of D-structure.

(7) John to Mary ga |(a) otagai o| hihansi-ta
|(b) aw |

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*Aw*, then, will be "incorporated" into the verb by $X^0$ movement, and through predication (7b) will result in a representation like (8).

(8) [John to Bob]$_i$ ga $e_i$ hihansi-aw$_i$-ta

We will see, however, that these two reciprocals have a number of differences with regard to their binding properties. In particular, *aw* exhibits several interesting properties which suggest the lexical nature of the construction and the lack of a syntactic position for *e* as in (8). This is not a surprising conclusion, given that verbs like *hihansi-aw* are morphologically of the form of a V-V compound. However, it has several interesting consequences for the the nature of the Exceptional Case Marking construction, the causative construction, and some kinds of adjunct expressions with accusative case in Japanese. Let us start our discussion with a comparison of the two devices to mark reciprocity in Japanese.

## 2. *Otagai* and *Aw*

It has been assumed that reciprocal constructions involve a binding relation in one way or another. More specifically, it has been assumed either that *each other* is an anaphor obeying Binding Condition (A) (e.g., Chomsky (1981)), or that *each* moves and attaches to the antecedent as a distributor and the trace left behind serves as an anaphor, as argued in Heim, Lasnik and May (1988). Binding Condition (A) is responsible for the binding relation in either case. I will assume the following version of the Binding Theory (from Chomsky (1981)) for the sake of exposition.

(9) Binding Condition (A)
An anaphor is bound in its governing category

(10) β is a governing category for α if and only if β is the minimal category containing α, a governor of α, and a SUBJECT accessible to α (SUBJECT = subject, AGR)

(11) a. α is accessible to β if and only if β is in the c-command domain of α and assignment to β of the index of α would not violate the *i*-within-*i* condition.

b. The *i*-within-*i* condition:
*[$_\gamma$ ... δ ...], where γ and δ bear the same index

It has been pointed out by Yang (1983) that *otagai* does not exhibit Nominative Island Condition (NIC) effects, as in (12a), but shows Specified Subject Condition (SSC) effects, as in (12b). Yang argues that Japanese lacks AGR, and therefore Binding Condition (A) causes no NIC effects or *i*-within-*i* condition effects, but only SSC effects for the binding of a reciprocal.

(12) a. karera ga [otagai ga Mary o aisiteiru to] it-ta
they nom e.o. nom acc love comp say-past
'(lit.) they said that each other loved Mary'

b. *karera ga [Mary ga otagai o aisiteiru to] it-ta
they nom nom e.o. acc love comp say-past
'(lit.) they said that Mary loved each other'

In (12a), *otagai* is in the embedded subject position. Since Japanese lacks AGR, by assumption, the embedded clause does not contain a SUBJECT accessible to *otagai*. Therefore, the matrix clause counts as the governing category for *otagai*, and *karera* can serve as its antecedent. (12b) is ungrammatical, because the embedded subject *Mary* qualifies as an accessible subject, and *otagai* is not bound in its governing category, the embedded clause.

The counterparts of (12a,b) with *aw* are both ungrammatical, as illustrated in (13a,b). If we underline the argument position to which a reciprocal interpretation is assigned, the relation between the underlined portion and its antecedent will exhibit both NIC and SSC effects.

(13) a.*karera ga [___ Mary o aisiteiru to] sinzi-aw-ta
they nom acc love comp believe-rec-past
'(lit.) they believed that each other loved Mary'

b.*karera ga [Mary ga ___ aisiteiru to] sinzi-aw-ta
they nom nom love comp believe-rec-past
.'(lit.) they believed that Mary loved each other'

If we assume that Japanese in fact has AGR, we will be able to explain (13), but we will lose explanation for (12).

In sum, the two reciprocals are different, in that reciprocity can hold between a matrix argument and the subject of a tensed embedded clause in the *otagai* construction, but not in the *aw* construction.[2]

Another difference is that the argument to which a reciprocal interpretation is assigned by *aw* can have a split antecedent, as illustrated in (14).

(14) John ga *Mary to* hihansi-aw-ta
nom with criticize-rec-past
'(lit.) John criticized each other with Mary'

A split antecedent is impossible with *otagai* and *each other*, as shown in (15).

(15) a.*John ga *Mary to* otagai o hihansi-ta
nom with e.o. acc criticize-past
'(lit.) John criticized each other with Mary'

b.*John criticized each other with Mary

This will be a serious problem for an approach in which a syntactic binding is involved for the *aw* construction. As I mentioned earlier, the two reciprocals in question can cooccur. Where they do, surprisingly, *otagai* can now take a split antecedent. Although the sentence (15'a) is not perfect for some speakers, (15'a) and (15'b) are significantly better than (15a).

(15') a.?John ga Mary to otagai o hihansi-aw-ta
nom with e.o. acc criticize-rec-past
'(lit.) John criticized each other with Mary'

b. John ga Mary to [otagai no hon] o hihansi-aw-ta
nom with e.o. 's book acc criticize-rec-past
'(lit.) John criticized each other's books with Mary'

This suggests that *otagai* in sentences like (5) is different from *otagai* in sentences like (4), and redundantly occupies the position to which *aw* assigns a reciprocal interpretation. We will come back to such examples in Section 5.

### 3. The Lexical Nature of the *Aw* Construction

In this section, I will attempt to show that the argument that is assigned a reciprocal interpretation is syntactically active in the *otagai* construction but not in the *aw* construction. Let us consider the binding of *zibun* first. Japanese reflexive *zibun* can be bound locally or non-locally if the antecedent is a subject. The sentence (16) is ambiguous, *zibun* being bound either by *John* or by *Mary*.[3]

(16) John ga [Mary o zibun no heya de hatarak]-ase-ta
nom acc self's room in work-cause-past
(a) 'John caused Mary to work in John's room'
(b) 'John caused Mary to work in Mary's room'

(17) is also ambiguous. It can mean (a) or (b).

(17) John to Mary ga [otagai o zibun no heya de hatarak]-ase-ta
and nom e.o. acc self's room in work-cause-past
(a) 'John caused Mary to work in John's room and Mary caused John to work in Mary's room'
(b) 'John caused Mary to work in Mary's room and Mary caused John to work in John's room'

Heim, Lasnik and May's (1988) analysis of *each other* and Ahn's (1989) analysis of Korean *selo* can be extended to Japanese *otagai*. According to Heim, Lasnik and May (1988), (18a) is mapped onto (18b) by movement of *each* in LF. (18b) is then mapped onto (18c) by further application of QR to the subject and object NPs.

(18) a. The men saw each other
b. $[_S[_{NP}[_{NP}\text{The men}]_1\ \text{each}_2][_{VP}\text{saw}\ [_{NP}e_2\ \text{other}]_3]]$
c. $[_S[_{NP}[_{NP}\text{The men}]_1\ \text{each}_2][_S e_2\ [_{VP}[_{NP}e_2\ \text{other}]_3[_{VP}\text{saw}\ e_3]]]]$

The trace of *each* is an anaphor and [*e other*] is an R-expression, functioning as a reciprocator. If we apply this analysis to Japanese *otagai* along the lines of Ahn (1989) on Korean *selo*, *otagai* consists of an empty distributive operator D and *otagai*, a reciprocator.

(19) [D otagai]

The (empty) distributor *D* corresponds to *each*, and *otagai* to *(the) other*. The empty distributor D is moved and attached to a c-commanding NP in LF. The LF representation of (17) will then be something like (20), if we put aside Quantifier Raising (QR).

(20) [[John to Mary] $D_i$] ga [[$t_i$ otagai]$_j$ o **zibun** no heya de
(a) (b)
(a')

hatarak]-ase-ta

The reading (17a) corresponds to the case where [*John to Mary D*] binds *zibun*. [*John to Mary*] itself ((a') in (20)) cannot be the antecedent of *zibun*, because *zibun* always takes an atomic individual as its antecedent, as pointed out by Abe (1977) and Kawasaki (1989). The reading (17b) corresponds to the case where [*t otagai*] binds *zibun*. In the case of *aw* illustrated in (21), on the other hand, only the (a) reading is possible.

(21) John to Mary ga zibun no heya de hatarak-ase-aw-ta
and nom self 's room in work-cause-rec-past
(a) 'John caused Mary to work in John's room and Mary caused John to work in Mary's room'
*(b) 'John caused Mary to work in Mary's room and Mary caused John to work in John's room'

This suggests that there is no syntactically active reciprocator (like *otagai*) (and probably no syntactically active distributor) in the *aw* construction.[4]

A similar point can be made by considering examples like (22).

(22) John ga Mary o *hadaka no mama* oikake-ta
nom acc while nude run after-past
'John ran after Mary while he was nude'
'John ran after Mary while she was nude'

(22) is ambiguous, as to which NP *hadaka no mama* ('while nude') is related to. Now, (23) with *otagai* has three possible interpretations.

(23) John to Mary ga otagai o hadaka no mama oikake-ta
and nom e.o. acc while nude run after-past
(a) 'John and Mary ran after each other while they were nude'
(b) 'John ran after Mary while he was nude and Mary ran after John while she was nude'
(c) 'John ran after Mary while she was nude and Mary ran after John while he was nude'

(23) has an LF representation like the following:

(24) [[John to Mary] $D_i$] ga [$t_i$ otagai]$_j$ o hadaka no mama oikaketa
(a) (b) (c)

When *hadaka no mama* ('while nude') is related to [*John to Mary*], we will get the (a) reading.[5] If it is predicated of [*John to Mary D*], we will get the (b) reading. If it is predicated of [*t otagai*], we will get the (c) reading. The corresponding sentence with *aw* in (25) can only have the (a) reading. On the assumption that *hadaka no mama* ('while nude') must be c-commanded by a syntactically projected NP,[6] this suggests again that the *aw* construction has no distributor or reciprocator syntactically active.[7]

(25) John to Mary ga hadaka no mama oikake-aw-ta
and nom while nude run after-rec-past
(a) 'John and Mary ran after each other while they were nude'
*(b) 'John ran after Mary while he was nude and Mary ran after John while she was nude'
*(c) 'John ran after Mary while she was nude and Mary ran after John while he was nude'

The fact that *aw* is incompatible with *sorezore*, an overt distributor, while *otagai* is acceptable with *sorezore*, supports this view.

(26) a. John to Mary ga sorezore otagai o hihansi-ta
and nom each other acc criticize-past
'John and Mary each criticized the other'

b.*John to Mary ga sorezore hihansi-aw-ta
and nom each other-rec-past

In short, *aw* expresses the idea of reciprocity in quite a different way from *otagai*. *Otagai* has several properties suggesting that both the distributor and the reciprocator are syntactically active, while *aw* does not seem to have either of them. Based on these observations, I claim that *aw* involves a lexical operation on argument structure and that the theta-role of the object NP is not projected into a syntactic position. From now on, let us say that *aw* "absorbs" the syntactic position of a verb it attaches to, but mark the corresponding syntactic position by an underline for the ease of description.

**4. Symmetric Predicates and Reciprocity**

As we have seen above, the participants of reciprocity split in the *aw* construction.

(27) John ga Mary to hihansi-aw-ta
nom with criticize-rec-past
'(lit.) John criticized each other with Mary'

This is reminiscent of "symmetric predicates" in the sense of Lakoff and Peters (1969). Some English examples are illustrated in (28) and (29).

(28) a. The hat and the coat match
     b. A and B are equal
(29) a. The hat matches the coat
     b. A is equal to B

One interesting property of symmetric predicates is that the participants of the action need not constitute a single syntactic constituent, as in (29). This is exactly the same property as *aw* has, as we observed. Interestingly enough, symmetric predicates can take a reciprocal (*each other*) as an argument to emphasize reciprocity.

(30) a. The hat and the coat match each other
     b. A and B are equal to each other

This reminds us of the fact that *aw* can cooccur with *otagai*. Although the exact semantic mechanism by which symmetric predicates are created must be left for further studies, I claim that suffixation of *aw* to a verb creates a symmetric predicate in the sense above.

## 5. Some Consequences

If *aw* involves a lexical operation on argument structure, it will follow that the reciprocal relationship that it signifies can only hold between the arguments of a verb. Thus, (13) will be explained. This will impose an even stricter locality requirement than syntactic binding like Binding Condition (A). This conclusion has several interesting consequences for some other areas of Japanese syntax.

First, both *otagai* and *aw* can appear in so-called Exceptional Case Marking (ECM) constructions. Let us tentatively assume the verb *sinzi* ('believe') governs into its complement clause as in (31) and (32).

(31) John to Mary ga [otagai o baka da to] sinziteiru
     and nom e.o. acc stupid be comp believe
     'John and Mary believe each other to be stupid'

(32) John to Mary ga [___ baka da to] sinzi-aw-teiru
     and nom stupid be comp believe-rec
     'John and Mary believe each other to be stupid'

The embedded clause in (31) does not contain a SUBJECT accessible to *otagai*. The matrix clause counts as the governing category for *otagai*, in which they are bound.

This explanation cannot be extended to *aw* cases. The underlined portion in (32), to which a reciprocal interpretation is assigned, is not a whole argument, but part of an argument of the verb. If *aw* involves a lexical operation on argument structure, absorption of a complement subject should be impossible. Thus, so-called ECM sentences in Japanese are not true ECM cases, but have a structure like (33), as argued for on independent grounds by Saito (1982).

(33) John ga Mary$_i$ o [e$_i$ baka da to] sinziteiru
     nom acc stupid be comp believe
     'John believes Mary to stupid'

It is the direct object of *sinziteiru* ('believe') that is absorbed by *aw* and not the complement subject.

Similar arguments can be made for the structure of causative constructions.

(34) [John to Mary]i ga ___i hatarak-ase-aw-ta
     and nom work-cause-rec-past
     'John and Mary caused each other to work'

Sentences like (34) indicate that the causee must be the direct object of the causative verb, not the complement subject. In other words, the causative verb must have NP and S as its complements, as in the ECM case.

Japanese has two kinds of causative constructions: the *ni*-causative and the *o*-causative. The *ni*-causative marks the causee with *ni*, which is the dative case, and the *o*-causative marks the causee with *o*, which is the accusative case. Although we cannot see the case of the causee directly, sentences like (34) have semantic properties of the *o*-causative rather than the *ni*-causative. Shibatani (1976) points out that in Japanese noncoercive causation is expressed by the *ni*-causative and coercive causation by the *o*-causative. Thus, adverbial phrases that express noncoercive manner like *yasasiku iikikasete* ('by gently persuading him') go naturally with the *ni* causative only, while phrases expressing coercive manner like *tikarazuku de* ('forcibly') go well only with the *o* causative.

(35) a. John ga yasasiku iikikasete Mary ni ik-ase-ta
nom gently persuading dat go-cause-past
'John caused Mary to go by gently persuading him'

b.??John ga tikarazuku de Mary ni ik-ase-ta
nom forcibly dat go-cause-past
'John caused Mary to go forcibly'

(36) a.??John ga yasasiku iikikasete Mary o ik-ase-ta
nom gently persuading acc go-cause-past
'John caused Mary to go by gently persuading him'

b. John ga tikarazuki de Mary o ik-ase-ta
nom forcibly acc go-cause-past
'John caused Mary to go forcibly'

Going back to the *aw* construction, the fact that it patterns like (36) above, as evidenced by the fact that (37b) is better than (37a), suggests that what is involved here is the *o*-causative, not the *ni*-causative.

(37) a.??John to Mary ga yasasiku iikikasete hatarak-ase-aw-ta
and nom gently persuading work-cause-rec-past
'John and Mary caused each other to work by gently persuading each other'

b. John to Mary ga tikarazuku de hatarak-ase-aw-ta
and nom forcibly work-cause-rec-past
'John and Mary caused each other to work forcibly'

This suggests that the causee of the *o*-causative is the direct object of the causative verb *sase*, as illustrated in (38), but the causee of the *ni*-causative is not.[8]

(38) John ga $[_{NP}$Mary$]_i$ o $[_{S}$e$_i$ hatarak$]$-ase-ta
nom acc work -cause-past
'John caused Mary to work'

Another implication of our analysis of *aw* is that in sentences like (39) it cannot be the genitive position of the NP (as shown in (39)) that is absorbed by *aw*, because it is not an argument of the verb, but part of an argument.

(39) karera ga [___ hon] o hihansi-aw-ta
they nom book acc criticize-rec-past
'They criticized each other's books'

I propose that the absorbed argument is the real object of *V-aw* and that *hon o* ('books') in (39) is simply an adjunct expression (or a secondary predicate predicated of *hon* ('book')). Thus, (39) will in fact have the structure given in (40), where the underlined portion indicates the object position absorbed by *aw*.

(40) karera ga ___ [e hon] o hihansi-aw-ta
nom book acc criticize-rec-past
'They criticized each other by criticizing their books'

Independently, Japanese sometimes allows adjunct phrases marked with accusative case when the verb does not have an overt lexical object (Ishii 1988).[9]

(41) John ga [doroboo ga heya kara deteki-ta tokoro] o
nom thief nom room from come out-past place acc
pro tukamae-ta
catch-past
'John caught a thief when he was coming out of the room'

In (41), the *when*-clause is assigned accusative case, while the real direct object is *pro*, an empty pronoun.

The structure given in (40) is supported by the fact that when 'they' are criticizing each other's books, 'they' are in fact criticizing each other. Therefore, while (40) is acceptable, (42) is not, as already pointed out by Sugioka (1985).[10]

(42) *karera ga hon o moyasi-aw-ta
they nom book acc burn-rec-past
'They burned each other's books'

Burning each other's books does not imply burning each other. The unacceptability of (42) supports the view that in sentences like (39) *aw* does not absorb the genitive NP of the direct object, but in fact absorbs the direct object itself.

The following example, in which the reciprocal relation appears to hold across the complex noun phrase, can also be accounted for in a similar way.

(43) John to Mary ga [[___ kaita] hon] o hihansi-aw-ta
and nom wrote book acc criticize-rec-past
'(lit.) John and Mary criticized the books each other wrote'

(43) should have a structure like (44), in which the direct object position is absorbed by *aw*, as indicated by the underline.

(44) John to Mary ga ___ [[e kaita] hon] o hihansi-aw-ta
and nom wrote book acc criticize-rec-past

Again, the verb *moyasu* ('burn') cannot participate in this construction. Therefore, the following sentence is out.

(45) *John to Mary ga ___ [[e kaita] hon] o moyasi-aw-ta
and nom wrote book acc burn-rec-past
'(lit.) John and Mary burned the books each other wrote'

Under this proposal, when *otagai* further occurs, it cannot be an argument of the verb because the position is absorbed by *aw* and there is no syntactic position for it, though it still has accusative case assigned by the verb. Sentences like (5), repeated here as (46), in which *otagai* and *aw* cooccur, have structures like (47), in which the underlined portion indicates the position absorbed by *aw*, and *otagai* or the phrase containing it does not occupy that position, but occurs as an adjunct.

(46) a. John to Mary ga otagai o hihansi-aw-ta
and nom e.o. acc criticize-rec-past

b. John to Mary ga [otagai no hon] o hihansi-aw-ta
and nom e.o. 's book acc criticize-rec-past

(47) a. John to Mary ga ___ otagai o hihansi-aw-ta
and nom e.o. acc criticize-rec-past

b. John to Mary ga ___ [otagai no hon] o hihansi-aw-ta
and nom e.o. 's book acc criticize-rec-past

We have seen (in Section 2 and Foonotes 4 and 7) that in this case *otagai* loses its syntactic properties as an anaphor as if it were not there: it can take a split antecedent; and there will be no distributor or reciprocator which can serve as the antecedent of *zibun*, or which can be related to phrases like *hadaka no mama* ('while nude').

We have seen that symmetric predicates can cooccur with a reciprocal NP. However, when it cooccurs with a (non-derived) symmetric verb like *dooisi* ('agree'), *otagai* cannot take a split antecedent, as shown in (49).

(48) John to Mary ga [otagai no otooto no settoku de] *dooisi*-ta
and nom e.o. 's brother's persuasion by agree-past
'John and Mary agreed because of each other's brother's persuasion'

(49)*John ga Mary to [otagai no otooto no settoku de] *dooisi*-ta
nom with e.o. 's brother's persuasion by agree-past
'(lit.) John agreed with Mary becaused of each other's brother's persuasion'

This indicates that the suffix *aw* plays a crucial role in this phenomenon. Now, why does the affixation of *aw* to a verb deprive the cooccurring *otagai* of its syntactic properties as an anaphor? I would speculate that this kind of *otagai* is just a place-holder for *e* as in (40) and (44). Semantically, this *e* will be coreferential with the patient of each reciprocal action. Thus, in (40) and (44) if John criticizes Mary, then the referent of *e* will be Mary and if Mary criticize John, it will be John. It seems that *otagai* in (47) functions like this *e*, thus not behaving like a typical anaphor. However, for the exact nature of this element, we have to await further studies.

**6. Summary**

In this paper, we compared the two kinds of reciprocals in Japanese; one is a verbal suffix *aw* and the other is an NP argument *otagai*. Although *otagai* seems to be taken care of by the syntactic binding theory, I have argued that there is no evidence for the existence of a syntactic position of the object NP in the case of *aw*. The suffix can be characterized as operating on the argument structure of a verb and preventing the theta role of the object NP from projecting into a syntactic position. Based on this conclusion, we have argued that the so-called ECM construction and the *o*-causative involve an NP object outside of the complement clause, and that an *o*-marked NP that appears in the *aw*-construction is not an argument of the stem verb, but is an adjunct related to the absorbed argument.

FOOTNOTES

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1. Abe (1982) and Sugioka (1985) are among the few studies done on this suffix. I will gloss *aw* as 'rec' for reciprocal in this paper. Although *aw* undergoes some phonological change depending on the context, I will use the form *aw* throughout the paper.

2. Another interesting difference between the two reciprocals is that while *aw* is subject-oriented, *otagai* does not have such restrictions.

(i) a. *John ga [Mary to Nancy] ni ___ syookaisi-aw-ta
nom and acc introduce-rec-past
'(lit.) John introduced Mary and Nancy each other'

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   b. *John ga [Mary to Nancy] o ___  syookaisi-aw-ta
         nom      and       acc    introduce-rec-past
      '(lit.) John introduced Mary and Nancy to each other'
(ii) John ga [Mary to Nancy] ni otagai o  syookaisi-ta
        nom      and       dat e.o.  acc introduce-past
     '(lit.) John introduced Mary and Nancy each other'
```

The subject-orientation of *aw* might be accounted for by a notion like "the highest argument in the thematic hierarchy" (Carrier-Duncan 1985).

3. Later I will argue for a different structure for this type of causative, but my arguments hold even if it has a different structure introduced later.

4. Where the two reciprocals cooccur, again the sentence exhibits the pattern of the *aw* construction.

```
(i) John to Mary ga [otagai o zibun no heya de hatarak]-ase-aw-ta
       and     nom  e.o. acc self 's room in work-cause-rec-past
    (a) 'John caused Mary to work in John's room and Mary caused
        John to work in Mary's room'
  ??(b) 'John caused Mary to work in Mary's room and Mary caused
        John to work in John's room'
```

Despite the presence of *otagai*, the sentence is no longer ambiguous. It only means what (21) means. Thus, it appears as if *otagai* as an anaphor did not exist syntactically.

5. One might argue that the existence of in (24) D should block c-command of *hadaka no mama* ('while nude') by *John to Mary* ('John and Mary'). One possible way out (suggested to me by Howard Lasnik) is to assume that the relation in question can be determined at S-structure as well as at LF. At S-structure, the D operator does not attach to the subject, and thus, does not prevent c-command by *John to Mary*.

6. A piece of evidence for this requirement can be found in the following examples. Kuroda (1965) points out that the verb *tabe* ('eat') in (i) can be interpreted either as an intransitive verb or as a transitive verb taking an empty pronoun, but the latter option is impossible in (ii). (This may be explained by the double-*o* constraint (Harada 1973).)

```
(i)  John ga  kodomo ni  tabe-sase-ru
          nom child  dat eat-cause-nonpast
     'John makes his child eat (it)'        (ni-causative)
(ii) John ga  kodomo o   tabe-sase-ru
          nom child  acc eat-cause-nonpast
     'John makes his child eat (*it)'       (o-causative)
```

*Nama no mama* ('while raw') can be used with (i) but not with (ii), as illustrated below.

```
(iii) John ga  kodomo ni  nama no mama tabe-sase-ru
          nom child  dat while raw    eat-cause-nonpast
      'John causes his child to eat it raw'
(iv) *John ga  kodomo o   nama no mama tabe-sase-ru
          nom child  acc while raw    eat-cause-nonpast
      'John causes his child to eat raw'
```

This suggests that this expression requires a syntactically projected argument as its antecedent.

7. Again, if we have both reciprocals in a sentence, the property of *aw* overrides that of *otagai*.

```
(i)  John to Mary ga otagai o hadaka no mama oikake-aw-ta
        and     nom e.o. acc  while nude   run after-rec-past
     (a) 'John and Mary ran after each other while they were nude'
    *(b) 'John ran after Mary while he was nude and Mary
         ran after John while she was nude'
    *(c) 'John ran after Mary while she was nude and Mary
         ran after John while he was nude'
```

8. Reciprocal verbs (with *aw*), like passive verbs, do not assign case to their objects. This is natural, given our hypothesis that there is no syntactic position for the object of reciprocal verbs, though this alone does not prove it. One can show the lack of case in the object position of reciprocal verbs using the *o*-causative construction. (Mamoru Saito brought this to my attention.) Harada (1973) points out that if the embedded verb has a direct object with accusative case, the causee cannot have accusative case, as illustrated in (ia), though it can have dative case, as in (ib).

```
(i) a.*John ga  Mary_i o [e_i hon  o   yom]-ase-ta   (o-causative)
        nom       acc   book acc read-cause-past
      'John made Mary read a book'
    b. John ga  [Mary ni  hon  o   yom]-ase-ta    (ni-causative)
        nom       dat book acc read-cause-past
      'John made Mary read a book'
```

This restriction holds even if the direct object of the embedded verb is an empty category as in (ii).

```
(ii) a.*[John ga Mary_i o  [e_i e_j yom]-ase-ta]   hon_j (o-causative)
          nom     acc       read-cause-past book
       'the book which John made Mary read'
     b. [John ga  [Mary ni e_j yom]-ase-ta]    hon_j  (ni-causative)
          nom       dat   read-cause-past book
       'the book which John made Mary read'
```

This is because the verb *yom* ('read') assigns accusative case to the embedded object NP, which is empty in this case. Comparing (iii) with examples like (i) and (ii), Saito (1982) convincingly argues that passive verbs in Japanese do not assign accusative case to the object. In (iii), if the trace left behind is assigned accusative case by *sikar-are* ('be scolded'), the sentence should be unacceptable just as (iia) is. The fact that this sentence is acceptable indicates that the NP trace is not assigned case.

```
(iii) Mary_i ga  John_j o [e_j damatte Tom ni t_i sikar-are]-sase-ta
        nom       acc   silently    by    scold-pass-cause-past
      'Mary made John be scolded by Tom without saying
      anything'                              (Saito 1982)
```

The same can be said about the *aw* sentence (iv). If there is an empty category with accusative case assigned by *hihansi* ('criticize') in the underlined position, then the sentence should be ungrammatical, because two accusative cases would be assigned.

```
(iv)  John ga [Bob to Tom]_i o   [e_i ___ hihansi-aw]-ase-ta
        nom     and     acc      criticize-rec-cause-past
      'John made Bob and Tom criticize each other'
```

The acceptability of this sentence shows that the underlined portion in (iv) is not assigned accusative case. This conclusion follows naturally in our analysis because there is no syntactic object position for the reciprocal verb *hihansi-aw*, as I have argued.

9. This possibility was pointed out to me by Mamoru Saito. In fact, this may attest the underlying existence of the double-accusative construction, in which the two NPs are in a so-called "inalienable possession" relationship. This construction usually does not show up in Japanese because of the double-*o* constraint (Harada 1973), which bans assignment of accusative case to two NPs. However, as pointed out by Kuroda (1988), it shows up in a cleft construction.

```
(i)  *Masao ga Hanako o   hoho  o   butta
        nom       acc cheek acc hit
      '(lit.) Masao hit Hanako the cheek'
      'Masao hit Hanako on the cheek'
```

(ii) Masao ga Hanako o butta no wa hoho (o) da
nom acc hit comp top cheek acc be
'It is on the cheek that Masao hit Hanako'
(iii) Masao ga hoho o butta no wa Hanako (?o) da
nom cheek acc hit comp top acc be
'It is Hanako that Masao hit on the cheek'

This suggests that the double-*o* constraint applies at a relatively late level in the derivation. For double accusative constructions in Korean, which does not have the double-*o* constraint, see Kim (1989), for example. Notice also that the following kind of "indirect" passive may be reanalyzed as a "direct" passive, given this analysis.

(iv) John$_i$ ga Mary ni $t_i$ hon o hihans-are-ta
nom by book acc criticize-pass-past
'(lit.) John was criticized (his) book by Mary'

10. Notice that the corresponding sentence with *otagai* is grammatical.

(i) karera ga [otagai no hon] o moyasi-ta
they nom e.o. 's book acc burn-past
'They burned each other's books'

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